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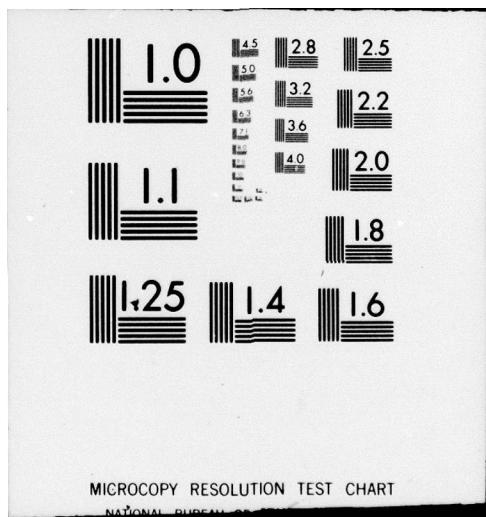
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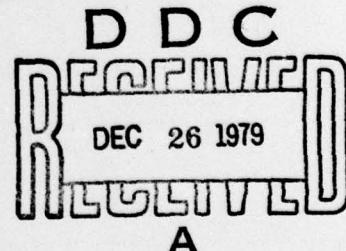
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CRITERION ASPECTS OF ARMY RESEARCH ON THE PREDICTION OF OFFICER PERFORMANCE

December 1965



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CRITERION ASPECTS OF ARMY RESEARCH ON THE PREDICTION
OF OFFICER PERFORMANCE

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by Louis P. Willemin

Submitted by

Leonard V. Gordon, Chief
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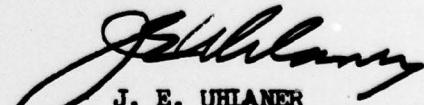
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FOREWORD

The overall mission of the OFFICER PREDICTION Task of the U. S. Army Personnel Research Office is to develop improved techniques and prerequisites for selecting officers who have aptitudes and other characteristics to meet the demands for successful performance in combat, administrative, and technical assignments.

The research program consists in essence of the development of a battery of tests--the Differential Officer Battery--and the determination of the effectiveness of these tests in differentially predicting officer performance in combat-type, administrative, and technical activities. Beginning in 1961, the tests were administered to approximately 4000 officers entering on active duty. After a year or more of service, 900 of these officers were evaluated in a series of situational performance tests--the Differential Officer Performance Battery--to obtain measures against which to gauge the effectiveness of the experimental predictors. The situational exercises were staged at the Officer Evaluation Center established for the purpose at Fort McClellan, Alabama.

The present Research Study describing the testing operations at the Officer Evaluation Center reproduces a paper delivered as part of a symposium conducted by the Division of Military Psychology at the annual meeting of the American Psychological Association held in September 1965 at Chicago, Illinois.



J. E. UHLANGER
Director of Laboratories

CRITERION ASPECTS OF ARMY RESEARCH ON THE PREDICTION
OF OFFICER PERFORMANCE

BRIEF

Requirement:

To obtain evaluation data on an officer sample for use in determining the effectiveness of an experimental battery designed to predict officer performance differentially in combat, administrative, and technical assignments.

Procedure:

Fifteen situational tests, integrated into a continuous test exercise, were developed through a long series of tryouts and modifications. Officers in the validation sample were assigned in groups of six to the Officer Evaluation Center to take part in the three-day criterion exercise until 900 officers--about one-third serving in each of the three broad groups of jobs--had been evaluated. All officers went through the complete exercise in which activities in all three job areas were represented. Manifold observations and judgments of the officer's behavior in each situation were recorded by a variety of means. Preliminary steps in the organization and analysis of the situational test data focused on clusters of items in the various checklists and scale evaluations.

Findings:

In selected combat problems, item clusters of several types were tentatively recognized, one specifically mission-oriented, others leadership-oriented, and still others oriented toward more general tactical requirements. The mission-oriented cluster appears to contribute most to combat potential as rated by trained observers at the Center.

Utilization of Findings:

The test exercise at the OEC provided evaluations under uniform conditions of the performance of each officer in all three job areas--evaluations which are essential to the development of differential predictors and which could not be obtained by the usual procedure of rating the officer in his actual assignment.

CRITERION ASPECTS OF ARMY RESEARCH ON THE PREDICTION OF OFFICER PERFORMANCE

Assume that you are a lieutenant in the United States Army. When you entered the service, you reported to an Army school for eight weeks of training in the duties of your particular branch--Infantry, or Engineer, or Quartermaster, or any of several others. But before that training began, you were given two days of experimental tests--self-description measures, information tests, measures of social perception and command judgment--even some tests of your physical skills. If all this happened to you, then you were one of 4,000 lieutenants in the Army's OFFICER PREDICTION research study conducted by the Army Personnel Research Office (APRO) to investigate the differential prediction of effective officer performance.

Those two days of tests which you took were developed by APRO to predict whether you would perform best in combat-type, administrative, or technical duties--regardless of the branch or duty assignment which you actually had. To find whether the tests really do predict relative effectiveness in these three areas, APRO will correlate your test scores with your actual performance--in your own Army job, to be sure, but perhaps also in a special three-day criterion exercise incorporating a series of combat-type, administrative, and technical requirements.

From June 1961 to February 1964, the 4,000 lieutenants in nine Army branches took the experimental predictor tests as they entered active duty. Each of them was rated a year or more later in the performance of his assigned duties. From February 1963 to May 1965, 900 of them went in groups of six, after about eighteen months of service, to the Officer Evaluation Center at Fort McClellan, Alabama for three days of situational criterion measurement. The objective was to evaluate about 300 each with combat-type, administrative, and technical military experience. The Officer Evaluation Center, or OEC, was established for the specific purpose of administering the situational performance tests, or work samples--five combat-type, five administrative, and five technical--to provide the primary criterion for APRO's OFFICER PREDICTION research.

Three principal considerations led to the decision to go beyond ratings of job performance and utilize performance tests as the main criterion for differential validation of the experimental predictors:

First, it was desired to obtain measures of performance in all three job areas for each examinee, whereas ratings of on-the-job performance would cover only the job area or areas in which the rated officer had actually served. To achieve this aim, it was necessary that the briefings, references, and other resources provided for each situational test be such that the test could be undertaken by all officers regardless of their backgrounds.

A second reason for choosing a situational criterion was that it provided uniform mission requirements and standardized observation procedures for all examinees. Ratings of job performance are obtained under widely varying conditions.

Finally, it was particularly desired to evaluate combat-type effectiveness not under conditions of normal day-to-day training activities, but under conditions simulating at least some of the combat stresses of wartime operations, by introduction of fatigue, harassment, hunger, and confusion.

Suppose, then, that in your role of Army lieutenant who took the experimental predictors, you have now been on active duty for about a year and a half and you receive temporary duty orders to Fort McClellan for the OEC criterion exercise. You and five other lieutenants arrive on a Sunday afternoon. Monday morning you all meet Colonel John H. Dixon, the Infantry officer commanding the OEC. He explains that, from that moment on, you are to consider yourself assigned to the headquarters of a Military Assistance Advisory Group, or MAAG, located on the outskirts of the capital city of a friendly foreign nation. He is the MAAG commander. You are awaiting re-assignment to a subordinate command, but in the meantime, since the MAAG is quite understaffed, you will be asked to pitch in and perform a variety of duties. The MAAG framework was chosen, in fact, because it did offer a vehicle for many different duty requirements, and provided an environment equally unfamiliar to all examinee lieutenants.

You are immediately given your own private office and put to work. A MAAG captain explains that the Host Nation is having difficulty adopting the American Army supply system. You are to study the supply regulations, and correct the records of a Host Nation unit whose commander has come to MAAG headquarters to be briefed on the system. You will brief him. When you meet him in the conference room, he is extremely antagonistic and gives you a very hard time. What you do not realize is that the conference room is "bugged". There is a one-way mirror through which the MAAG captain is observing and recording your reaction to the stress interview and the correctness of your briefing--point by point on a checklist. In fact, throughout your activities with this simulated MAAG unit, checklist records of your performance will be kept, and you will be graded on your approach to problems and your handling of situations--but never in your presence. To all intents and purposes, you are in an actual job situation.

You work until supper time, correcting deficiencies in communications and automotive equipment. You have supper, but the day is not over. You still have five hours of paper work of an office management and administrative nature. By 10:30 at night, you are glad that Monday's work is done.

But four hours later, at 2:30 in the morning, Tuesday begins with a banging on your door and instructions for you and the five other lieutenants to report immediately to the MAAG headquarters briefing room. There, a top MAAG officer informs the group that the Host Nation has been attacked with three nuclear strikes and two columns invading in force. For the next

eight hours, seated at the radio in your own office, and with the Host Nation map in front of you, you direct four jeep-mounted survey teams as they range over Host Nation terrain, reporting back road damage, intelligence information, and radiation levels.

At noon you have a luncheon break, and then you have an hour and a half to evaluate a foreign weapon picked up by one of your survey teams. You spend three hours selecting new depot sites to replace those destroyed by the nuclear strikes, and two and one-half hours working out a new highway plan. At 8:00 p. m., you go back to your quarters, eat your warmed-up C-rations, and sink into bed.

But the war goes on. Shortly before midnight, you and the other lieutenants are again called back to MAAG headquarters. The situation has so deteriorated that the capital city must be evacuated. You are issued weapons, transported away from headquarters by truck, and then led through the night on a five-mile forced foot-march to the field command post, where the entire MAAG organization enters into a guerrilla situation. You spend the three hours before dawn writing out a march order to link up two friendly guerrilla units.

As Wednesday dawns, you receive a briefing on the combat situation, indicating that there are hostile guerrillas in the general area. You go on a two-hour roadblock mission, and then you are ordered to take three noncommissioned officers to a helicopter landing zone. You have one hour to plan the deployment of a platoon of men in defense of the landing zone. One of these NCOs is the most difficult soldier you have ever handled. You spend an hour in a prepared observation post, and then you are sent on a three-hour jeep-mounted reconnaissance patrol. You are captured, interrogated, and ultimately released. When you reach the MAAG command post bunker, you learn that international negotiations have achieved a cease-fire, and all foreign nationals must leave the Host Nation territory.

You return to the OEC headquarters for debriefing. The next day you are interviewed by APRO's psychologist-in residence at the OEC, sign an agreement not to reveal the events that have taken place, and depart for your home station.

Questionnaire reactions from an early sample consisting of 130 lieutenants who performed the OEC exercise indicate that 60% had little or no difficulty in accepting this MAAG narrative, and one in six of these tended at times to forget that the story was not real. Only 9% of the total felt uncomfortable with it. Similarly, one-third of the total considered the OEC exercise one of their most worth-while experiences in the Army, and only 2% felt that it was of relatively little value. Some were completely swept up in the realism, to the extent of going all the way up to Colonel Dixon himself to check on some MAAG requirement. One turned back to shake the hand of the friendly guard who released him from captivity after the interrogation. Some, on the defense of the helicopter landing zone, actually tied up the troublesome sergeant in order to immobilize him.

OFFICER PERFORMANCE SCALE

WHAT IS YOUR OVER-ALL JUDGMENT
OF THE RATED OFFICER'S PERFORMANCE OF THIS DUTY?

7 The VERY BEST TYPE OF OFFICER PERFORMANCE--an inspiring example to all. I trust him completely, in this assignment, to know what is to be done and to see that it is done, in any circumstance. His performance of this duty is far above the requirements of his situation, suggesting the highest kind of formal recognition through meritorious award, decoration, or accelerated advancement in grade. This type of officer is ideal for important duty in this kind of assignment.

6 An EXTREMELY HIGH TYPE OF OFFICER PERFORMANCE. He pulls a great deal more than his own weight in this assignment. His performance of this duty is markedly above the requirements of his situation, suggesting formal recognition through off-schedule preparation of a special (favorable) efficiency report, or through letter of commendation or of appreciation.

5 VERY GOOD OFFICER PERFORMANCE. He has more than enough of what it takes to succeed in this assignment. His performance of this duty is somewhat above the requirements of his situation, suggesting informal recognition through specific favorable comment (for example, in his regular efficiency report), and through informal appreciation or commendation.

4 GOOD OFFICER PERFORMANCE--the backbone of the officer corps. He has what it takes to succeed in this assignment. His performance of this duty is fully up to the requirements of his situation, suggesting general appreciation (perhaps mostly unexpressed).

3 NOT-SO-GOOD OFFICER PERFORMANCE. He doesn't quite have what it takes to succeed in this assignment, without special help. His performance of this duty is somewhat below the requirements of his situation, though suggesting only the mildest kind of corrective action through informal recommendations for improvement provided by proper supervision, or through change of duty assignment within the organization.

2 PRETTY POOR OFFICER PERFORMANCE. He has very little of what it takes to succeed in this assignment. His performance of this duty is markedly below the requirements of his situation, suggesting formal corrective action through off-schedule preparation of a special (unfavorable) efficiency report, through administrative admonition, letter of reprimand, or summary court, or through transfer out of the organization.

1 The WORST TYPE OF OFFICER PERFORMANCE--a total threat to the mission. Either he doesn't know his job, or he can not or will not perform it as required. His performance of this duty is far below the requirements of his situation, suggesting the most drastic kind of formal corrective action through reclassification, demotion, general court, or boarding out of the Army.

Figure 1. Officer Performance Scale on which criterion ratings were obtained

How was this realism achieved? To begin with, the performance tests themselves were developed over a long period of time by APRO psychologists in full collaboration with subject matter experts. The tests were given trial runs, revised, and revised again with the help of the service schools and the OEC staff. Six months were devoted to orienting and rehearsing the OEC testing teams. Behind-the-scenes arrangements included special simulation techniques, such as an elaborate communications facility for the road damage and radiation survey teams, and a sophisticated electrical detonation hook-up to simulate artillery with charges of TNT. By use of one-way mirrors, telephone and radio contacts, tape recorders, and memory when necessary, recording and evaluation of performance were consistently done without the knowledge of the examinee. And finally, Colonel Dixon and his entire staff of 17 officers and 41 enlisted men played their roles to the hilt, never interrupting the MAAG simulation even between problems.

Let us turn now to some of the data. Take first the ratings of on-the-job performance obtained after a year or so of duty--before administration of the situational criterion. These ratings were obtained on the seven-step Officer Performance Scale designed especially for this research (Figure 1). In each scale-step description, an attempt was made to tie the level of performance to appropriate administrative actions, such as award or decoration in step 7, commendation in step 6, or reprimand in step 2. Evaluations of the lieutenants' performance of their own jobs averaged very close to 5 on this scale.

Ratings were collected by mail from each lieutenant's immediate supervisor, another superior cognizant of his performance, and two close associates. They have not yet been analyzed for the present sample, but in an earlier sample the identical procedures yielded the intercorrelation coefficients shown in Table 1. With an average intercorrelation coefficient of about .40, the reliability coefficient of the four-rater average is estimated at about .73.

At the time the job performance ratings were obtained, raters were also asked to estimate the rated officer's long-term potential in all three areas--combat, administrative, technical. These estimates will eventually be compared with the situational criterion scores in the three areas. The approach used (Figure 2) indicates how a ranking procedure was introduced in an effort to minimize halo.

Table 1

OFFICER PERFORMANCE SCALE--
INTERCORRELATION COEFFICIENTS AMONG RATINGS,
BY TYPE OF RATER
(N = 687)

Rater	Immediate Superior	Other Superior	First Associate
Other Superior	.47		
First Associate	.41	.39	
Second Associate	.34	.37	.39

Regardless of the branch or MOS in which the rated officer is now serving, and assuming he could have equal training and experience in all three areas, what are his relative capabilities in each of the above assignment areas in terms of long-term growth potential and capacity for increased responsibility under wartime conditions? How would he work out in each area?

13. He will be BEST in: (Check one)	COM-BAT <input type="checkbox"/>	AD-MIN <input type="checkbox"/>	TECH-NCL <input type="checkbox"/>	15. I rate his expected performance in his BEST area as follows*:	<input type="checkbox"/>
(Check area not best nor worst)	COM-BAT <input type="checkbox"/>	AD-MIN <input type="checkbox"/>	TECH-NCL <input type="checkbox"/>	16. I rate his expected performance in his NEXT area as follows*:	<input type="checkbox"/>
14. He will be WORST in: (Check one)	COM-BAT <input type="checkbox"/>	AD-MIN <input type="checkbox"/>	TECH-NCL <input type="checkbox"/>	17. I rate his expected performance in his WORST area as follows*:	<input type="checkbox"/>
15-17 See above at right.	*Enter number of appropriate scale step of Officer Performance Scale (see back page).				

Figure 2. Form for estimating long-term potential in three assignment areas

There are mountains of situational test data on each examinee--hundreds of objective checklist items, objective records such as location and correction of specific malfunctions, scores of subjective judgments such as evaluations of approach to problems and ratings of reactions in the stress interview. Analysis of the situational test data begins with studies of checklist item clusters and scale evaluations. For example, a seven-step Combat Officer Aptitude Scale, parallel in structure to the seven-step Officer Performance Scale shown in Figure 1, was part of the performance record in the defense of the helicopter landing zone. In a preliminary sample of 150 lieutenants, there was very high intercorrelation among the ratings by the four role-players, with the coefficients averaging about .74, as may be seen from Table 2. While the average rating score on the Officer Performance Scale was about 5, the average rating score on the Combat Officer Aptitude Scale was only about 3.

Table 2

INTERCORRELATION COEFFICIENTS OF RATINGS, BY ROLE OF RATER,
ON COMBAT OFFICER APTITUDE SCALE
(Defense of Helicopter Landing Zone)
(N = 150)

Rater	Captain	Experienced Sergeant	Administrative Sergeant
Experienced Sergeant	.72		
Administrative Sergeant	.72	.79	
Jeep Driver	.67	.79	.77

Very preliminary cluster analysis results are interesting. In two combat-type problems, there seems to be a tendency for some clusters to consist of checklist items directly oriented toward the specific mission, while other clusters have a more general leadership or tactical orientation.

Correlation coefficients of selected clusters with the Combat Officer Aptitude Ratings (Table 3) indicated that the mission-oriented cluster of checklist items on weapons placement is the heaviest contributor to estimated combat officer potential, with the leadership-oriented command discipline cluster next (handling the difficult NCO), and observance of tactical security precautions last.

Table 3

ESTIMATED INTERCORRELATION COEFFICIENTS OF SELECTED CHECKLIST ITEM
CLUSTERS AND COMBAT OFFICER APTITUDE RATINGS
(Defense of Helicopter Landing Zone)
(N = 150)

Variable	Weapons Placement	Handling Difficult Sergeant	Observing Security
Handling Difficult Sergeant	.43		
Observing Security		.21	
Rating	.79	.58	.33

These results are very tentative, because complete analysis of these data is far in the future.

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